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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,429	09/15/2005	Kiyoto Takizawa	AK-N-508XX	9502

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BOSTON, MA 02109

EXAMINER

KERNS, KEVIN P

ART UNIT	PAPER NUMBER
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1725

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/549,429

Applicant(s)

TAKIZAWA ET AL.

Examiner

Kevin P. Kerns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☒ Claim(s) 1 and 2 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 9/15/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicants' claim for foreign priority based on applications filed in Japan on 2/25/04 and 6/17/04. It is noted, however, that the applicants have not filed certified copies of the Japanese applications as required by 35 U.S.C. 119(b).

Specification

2. The disclosure is objected to because of the following informalities: on page 2, 14th line, replace the unclear phrase "maintenance requires a trouble". On page 2, 24th line, replace the unclear phrase "it has no a large size". On page 12, 7th and 10th lines, as well as page 13, 6th and 12th lines, replace "34" with "37" after "auxiliary heating member" in all 4 instances to be in agreement with the drawings. On page 13, 15th line, insert "," after "37" for clarity. On page 14, 7th line, add a space between the phrase "structureexhibiting". On page 14, 26th and 29th lines, respectively, the "Length: 300" and "Height: 610" both lack a unit of length. Throughout page 15 and at the top of page 16, units are lacking for most of the values provided. Corrections and/or clarifications are required for these and other errors that occur throughout the specification.

Claim Objections

3. Claims 1 and 2 are objected to because of the following informalities: in claim 1, 14th line, replace "the" with "an" before "inner" to obtain proper antecedent basis. In

claim 1, 15th line, replace "the" with "a" before "diameter" to obtain proper antecedent basis. In claim 1, 16th line, replace "the" with "an" before "insertion" to obtain proper antecedent basis. In claim 2, 4th line, replace "a" with "an" before "outflow". Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to independent claim 1, 3rd line from the end of the claim, the phrase "is possible" fails to distinctly set forth an actual process limitation, as "is possible" is an optional and functional limitation. Furthermore, the last 3 lines of claim 1 are unclear regarding the (comparative?) linear expansion coefficients.

With regard to independent claim 1, last line, the phrase "adopted as the melting cylinder" is unclear. Should "adopted as" be replaced with the term "of"?

Claim 1 recites the limitation "said thermally expanding melting cylinder". There is insufficient antecedent basis for this limitation in the claim.

With regard to claim 5, the phrase "laterally cross" is unclear, and it is believed that this phrase should be changed to "laterally across" (also with respect to one or more structures?).

Regarding claim 7, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention.

See MPEP § 2173.05(d).

Regarding claim 7, the phrase "or the like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102/103

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

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were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1, 3, 7-9, and 13 insofar as definite (in view of the 35 USC 112, 2nd paragraph rejections) are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Takizawa et al. (US 7,165,599).

Takizawa et al. disclose a melting and feeding method and apparatus of solid metallic raw material in a metal molding machine, in which the method (as applied to the apparatus shown in Figure 3) includes the steps of providing a metallic raw material M' (in the form of zinc, magnesium, or an alloy of these metals, that inherently exhibit thixotropic properties at a temperature in a solid-liquid coexisting temperature range – column 1, lines 10-15) into a cylindrical shape after cutting/removing cavities and impurities from the surface of metallic raw material M'; inserting the cylindrical metallic raw material M' as a molding material (in an unheated, non-thermal expansion state) into a melting cylinder 31 provided vertically above a heated holding cylinder 21; semi-melting or completely melting the cylindrical metallic raw material M' by a heating means 32 surrounding the melting cylinder 31; and providing a clearance of 0.8-1.0 mm between the inner circumferential surface of the melting cylinder 31 and the outer circumferential surface of the cylindrical metallic raw material M' (column 7, lines 1-12)

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to account for the (higher) linear thermal expansion of the cylindrical metallic raw material M' in comparison to the (lower) linear thermal expansion of the melting cylinder 31 (abstract; column 1, lines 10-15; column 2, lines 50-67; column 3, lines 1-28; column 5, lines 51-67; column 6, lines 1-67; column 7, lines 1-31; and Figure 3). Although the linear thermal expansion coefficient of the melting cylinder (normally comprised of stainless steel or other steels of high melting temperature) would necessarily be lower than the linear thermal expansion coefficient of the cylindrical metallic raw material (zinc, magnesium, their alloys etc. of much lower melting temperature), one of ordinary skill in the art would have recognized that the use of other metallic raw materials of low melting temperatures (and low linear thermal expansion coefficients) would be possible for use in the melting cylinder, whereas high melting temperature metallic raw materials of high linear thermal expansion coefficients would not only lack thixotropic properties, but also would not be suitable for the melting cylinder, as excessive heating of high melting temperature metallic raw materials (approaching the melting temperature of the melting cylinder) would increase the probability of damage to the melting cylinder.

The applied reference has a common assignee and common inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Allowable Subject Matter

10. Claims 2, 4-6, and 10-12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to teach or suggest that the melting cylinder includes the combination of a funnel-shaped bottom portion that connects to a body portion of the melting cylinder, and an auxiliary heating member provided laterally in a lower portion of the body portion adjacent to the bottom portion of the melting cylinder, such that both ends of the auxiliary heating member are fixed to a body wall, with the auxiliary heating member being operable to partially support and to provide contact heating of the bottom surface of the cylindrical metallic raw material (dependent claim 2).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2001/0020526 and US 2003/0051851 are also cited in PTO-892.

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin P. Kerns *Kevin Kerns 2/14/07*
Primary Examiner
Art Unit 1725

KPK
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February 14, 2007